UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,140	12/28/2001	Athanasios A. Kasapi	15685P110	1620

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EXAMINER
DYKE, KERRI M

ART UNIT	PAPER NUMBER
2616	

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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	Application No.	**Applicant(s)**
Office Action Summary	10/034,140	KASAPI ET AL.
	Examiner	**Art Unit**	
	Kerri M. Rose	2616	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 July 2006*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All   b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)
2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .
5)☐ Notice of Informal Patent Application (PTO-152)
6)☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 101

1.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 18-24 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. Page 33 of the specification discloses signals/carrier waves as an embodiment of the storage medium. Signals do not fall into any of the four statutory categories of invention. They do not set forth steps or a procedure and therefore cannot be a process. A signal is not a machine because it has no physical structure and cannot itself perform a useful, concrete, and tangible result. A signal is made up of energy, not matter, and therefore is not a composition of matter. Lastly, a manufacture requires physical substance, which a signal does not have. Consult pages 55-57 of the guidelines available at:

http://www.uspto.gov/web/offices/pac/dapp/opla/preognotice/guidelines101_20051026.pdf for more information.

Claim Rejections - 35 USC § 103

2.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3.   Claims 1, 2, and 7-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shek et al. (*Dynamic Spatial...*) in view of Huang et al. (*A Spatial Clustering...*).

4.   In regards to claim 1, Shek discloses in a wireless communication system, a method

comprising: identifying one or more target(s) for which a communication signal is intended;

identifying one or more other target(s) which may benefit from receipt of the communication

signal. In the first paragraph of page 133, Shek discloses "dynamically cluster similar user

profiles into aggregate group profiles that are served by independent multicast channels..." Shek

then discloses in the first paragraph of page 143, "By taking into account of expected changes...

achieves predictive information push that anticipates future user needs and minimizes latency of

data request by making data available before they are explicitly requested." In other words, Shek

identifies a target group for the communication signal and based upon the movement of

neighboring target groups, selects users who may find the information useful and sends the

information to both the intended recipients and the additional targets.

Shek does not disclose developing a multi-lobe beampattern to transmit the

communication signal to the intended target(s) and the identified one or more other target(s).

Huang discloses a method for forming a multi-lobe beampattern in order to communicate

with groups of users while avoiding potential interferors on page 193 and figure 6.

It would have been obvious to one of ordinary skill in the art to modify Shek's wireless

system to include Huang's adaptive array antenna and beamforming pattern because adaptive

array antennas increase the capacity of the system, as taught by Huang in the third paragraph of

the first column on page 191. Figure 4 of Huang also shows that the beamforming technique

helps minimize performance loss because the multi-lobe pattern more effectively avoids

interference.

5.   In regards to claim 2, Shek and Huang disclose a method according to claim 1, further

comprising: transmitting the communication signal to the intended target(s) and the identified

other target(s) employing the developed multi-lobe beampattern. Transmitting is inherent since

the object of both Shek and Huang is to efficiently transmit data to mobile users. Additionally,

Shek's "predictive information push" (p. 143) is transmitting and Huang discloses that the goal

of the beamforming is "to minimize the transmitted energy to the undesired user" in the first

column of page 192.

6.   In regards to claim 7, Shek and Huang disclose a method according to claim 1, wherein

developing a multi-lobe beampattern comprises: identifying a first spatial signature associated

with the intended target(s); identifying a second spatial signature associated with the identified

other target(s); and modifying one or more transmission characteristics of the communication

signal based, at least in part, on the identified first and second spatial signatures to generate a

multi-lobe beampattern directed to each of the intended target(s) and the identified other

target(s). Huang, on page 193, discloses determining the direction of arrival (DOA, a spatial

signature) of undesired users and using the information to modify the beam to facilitate nulling.

Additionally, Shek discloses using "the expected rate and direction of change in users' geo-

spatial interest domain" to determine which users are other targets and modifying the multicast in

order to push information to users other than the intended users on page 143.

7.   In regards to claim 8, Shek and Huang disclose a method according to claim 1, further

comprising: identifying a spatial signature for undesired users; and modify the multi-lobe

beampattern to facilitate nulling of at least a subset of the undesired user(s) based, at least in part,

on the identified spatial signature for the undesired users. Huang, on page 193, discloses

determining the direction of arrival (DOA, a spatial signature) of undesired users and using the information to modify the beam to facilitate nulling.

8.   In regards to claim 9, Shek discloses a transceiver comprising: wireless communication resources, to selectively transmit a wireless communication signal; and a communications agent, coupled with the wireless communication resources, to identify one or more target(s) for which the communication signal is intended as well as one or more other target(s) which may also benefit from receipt of the communication signal. The bottom of the first paragraph on page 133 discloses that mobile user may send and receive announcements to users within an assigned group. The device used by the mobile user must be a transceiver with wireless communication resource, which selectively transmits a signal in order to accomplish such a function. The first and second paragraphs of page 143 disclose that each user is connected to an information dissemination infrastructure, which tracks users movements, determines intended targets and other targets and keeps each user updated with information such as the appropriate channel to use.

Shek does not disclose using an antenna array and developing a multi-lobe beampattern to transmit the communication signal to the intended target(s) and the identified one or more other target(s).

Huang discloses a method for forming a multi-lobe beampattern in order to communicate with groups of users while avoiding potential interferers on page 193 and figure 6 and an adaptive array on page 191.

It would have been obvious to one of ordinary skill in the art to modify Shek's wireless system to include Huang's adaptive array antenna and beamforming pattern because adaptive

array antennas increase the capacity of the system, as taught by Huang in the third paragraph of
the first column on page 191. Figure 4 of Huang also shows that the beamforming technique
helps minimize performance loss because the multi-lobe pattern more effectively avoids
interference.

9.   In regards to claim 10, Shek and Huang disclose a transceiver according to claim 9,
wherein the communications agent analyzes a received datagram for transmission in the
communication signal for target information. Page 138 of Shek discloses, "The submission,
update, or cancellation of user requests triggers the profile clustering process." Page 143
discloses that a user profile includes expected location changes and that information is used to
determine intended and other targets. Therefore, Shek discloses analyzing a message for sender
location/group information and using that information to determine the intended and other
targets.

10.   In regards to claim 11, Shek and Huang disclose a transceiver according to claim 10,
wherein the target information includes at least information denoting the intended target(s) and
information denoting other target(s) which may benefit from receipt of the communication
signal. Page 138 of Shek discloses, "The submission, update, or cancellation of user requests
triggers the profile clustering process." Page 143 discloses that a user profile includes expected
location changes and that information is used to determine intended and other targets. Therefore,
Shek discloses analyzing a message for sender location/group information and using that
information to determine the intended and other targets.

11.   In regards to claim 12, Shek and Huang disclose a transceiver according to claim 10,
wherein the target information comprises one or more of an electronic serial number (ESN), a

media access control (MAC) address, and internet protocol (IP) address, a telephone number,

and/or an application identifier. Shek discloses using Multicast Dissemination Protocol (MDP)

on page 142. MDP is used in conjunction with TCP/IP or UDP/IP and does not require any

changes in the router functionality. It is well known that routers use either a MAC address or IP

address to uniquely identify the destination. Since MDP does not change router functionality,

the router will continue to use either MAC or IP addresses.

12.   In regards to claim 13, Shek and Huang disclose a transceiver according to claim 10,

wherein the communications agent identifies a first spatial signature associated with the one or

more intended target(s) and a second spatial signature associated with the identified one or more

other target(s). Huang, on page 193, discloses determining the direction of arrival (DOA, a

spatial signature) of desired and undesired users and using the information to modify the beam to

facilitate nulling of the undesired users. Additionally, Shek discloses using "the expected rate

and direction of change in users' geo-spatial interest domain" to determine which users are other

targets and modifying the multicast in order to push information to users other than the intended

users on page 143.

13.   In regards to claim 14, Shek and Huang disclose a transceiver according to claim 13, the

communications agent comprising: a beamforming engine, to modify one or more transmission

characteristics of the communication signal based, at least in part, on the identified first and

second spatial signatures. Huang, on page 193, discloses determining the direction of arrival

(DOA, a spatial signature) of desired and undesired users and using the information to modify

the beam to facilitate nulling of the undesired users. Additionally, Shek discloses using "the

expected rate and direction of change in users' geo-spatial interest domain" to determine which

users are other targets and modifying the multicast in order to push information to users other than the intended users on page 143.

14.   In regards to claim 15, Shek and Huang disclose a transceiver according to claim 14, wherein beamforming engine modifies one or more of a amplitude weight value and/or a phase weight value associated with each of the one or more antennae in the antenna array to generate the developed beampattern. Huang discloses modifying weights on page 193.

15.   In regards to claim 16, Shek and Huang disclose a transceiver according to claim 15, wherein the communications agent identifies a spatial signature associated with one or more undesired users of the communication signal, wherein beamforming engine modifies one or more attributes of the multi-lobe beampattern to null at least a subset of the undesired users. Huang, on page 193, discloses determining the direction of arrival (DOA, a spatial signature) of desired and undesired users and using the information to modify the beam to facilitate nulling of the undesired users. Additionally, Shek discloses using "the expected rate and direction of change in users' geo-spatial interest domain" to determine which users are other targets and modifying the multicast in order to push information to users other than the intended users on page 143.

16.   In regards to claim 17, Shek and Huang disclose a transceiver according to claim 9, further comprising: a memory system having stored therein content; and control logic, coupled with the memory system, to access and execute at least a subset of the content to implement the communications agent. The transceiver disclosed by Shek and Huang would not operate without memory to store the user profile, instructions for using the profile, and control logic to access and implement the instructions. Therefore such features are inherent.

17.   In regards to claim 18, Shek discloses a storage medium comprising content which, when

executed by an accessing computing device, causes the computing device to implement a

communications agent to identify one or more target(s) of a communication signal as well as one

or more other target(s) which may also benefit from receipt of the communication signal. In the

first paragraph of page 133, Shek discloses "dynamically cluster similar user profiles into

aggregate group profiles that are served by independent multicast channels..." Shek then

discloses in the first paragraph of page 143, "By taking into account of expected changes...

achieves predictive information push that anticipates future user needs and minimizes latency of

data request by making data available before they are explicitly requested." In other words, Shek

identifies a target group for the communication signal and based upon the movement of

neighboring target groups, selects users who may find the information useful and sends the

information to both the intended recipients and the additional targets. The transceiver disclosed

by Shek would not operate without memory (storage medium) to store the user profile,

instructions for using the profile, and control logic (access computing device) to access and

implement the instructions. Therefore such features are inherent.

   Shek does not disclose instructions to develop a multi-lobe beampattern to transmit the

communication signal to the intended target(s) and the identified one or more other target(s).

   Huang discloses a method for forming a multi-lobe beampattern in order to communicate

with groups of users while avoiding potential interferers on page 193 and figure 6.

   It would have been obvious to one of ordinary skill in the art to modify Shek's wireless

system to include Huang's adaptive array antenna and beamforming pattern because adaptive

array antennas increase the capacity of the system, as taught by Huang in the third paragraph of

the first column on page 191. Figure 4 of Huang also shows that the beamforming technique

helps minimize performance loss because the multi-lobe pattern more effectively avoids

interference.

18.   Claims 19-24 are rejected upon the same grounds as claims 10-15.

19.   Claims 3-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shek et al.

(*Dynamic Spatial...*) in view of Huang et al. (*A Spatial Clustering...*) further in view of Gleeson

(US 6,477,160).

20.   In regards to claim 3, Shek and Huang disclose a method according to claim 1, wherein

identifying the target(s) comprises: analyzing a received datagram for target information, but not

wherein the wireless communication system implements general packet radio services (GPRS).

Page 138 of Shek discloses, "The submission, update, or cancellation of user requests triggers

the profile clustering process." Page 143 discloses that a user profile includes expected location

changes and that information is used to determine intended and other targets. Therefore, Shek

discloses analyzing a message for sender location/group information and using that information

to determine the intended and other targets.

        Gleeson discloses using GPRS in column 4 lines 25-27.

        It would have been obvious to one of ordinary skill in the art to modify Shek and

Huang's wireless system in order to use Gleeson's GPRS, because GPRS increases capacity, as

taught by Gleeson in column 1 lines 37-51.

21.   In regards to claim 4, Shek, Huang, and Gleeson disclose a method according to claim 3,

wherein the target information includes at least information regarding the intended target(s) of

the wireless communication signal. Page 138 of Shek discloses, "The submission, update, or

cancellation of user requests triggers the profile clustering process." Page 143 discloses that a

user profile includes expected location changes and that information is used to determine

intended and other targets. Therefore, Shek discloses analyzing a message for sender

location/group information and using that information to determine the intended and other

targets.

22.   In regards to claim 5, Shek and Huang disclose a method according to claim 4, wherein

the target information comprises one or more of an electronic serial number (ESN), a media

access control (MAC) address, and internet protocol (IP) address, a telephone number, and/or an

application identifier. Shek discloses using Multicast Dissemination Protocol (MDP) on page

142. MDP is used in conjunction with TCP/IP or UDP/IP and does not require any changes in

the router functionality. It is well known that routers use either a MAC address or IP address to

uniquely identify the destination. Since MDP does not change router functionality, the router

will continue to use either MAC or IP addresses.

23.   In regards to claim 6, Shek, Huang, and Gleeson disclose a method according to claim 3,

wherein the target information includes at least information regarding the intended targets of the

wireless communication signal and intended target(s) of a subsequent wireless communication

signal. Page 138 of Shek discloses, "The submission, update, or cancellation of user requests

triggers the profile clustering process." Page 143 discloses that a user profile includes expected

location changes and that information is used to determine intended and other targets. Therefore,

Shek discloses analyzing a message for sender location/group information and using that

information to determine the intended and other targets.

Response to Arguments

24.   Applicant's arguments filed 7/24/2006 have been fully considered but they are not

persuasive.

25.   Firstly, the target group described by Shek is composed of the intended recipient and

additional recipients who may benefit from the signal. Shek "anticipates future *user* needs."

Additional users who are traveling with a similar velocity are grouped with the user with the idea

that other users traveling similarly to the intended user may benefit from the same information.

26.   Secondly, the *combination* of Huang and Shek discloses developing a multi-lobe

beampattern to transmit the communication signal to multiple users. Shek communicates a

signal to multiple users, but does not disclose using a beampattern to do so. Huang discloses

developing a multi-lobe beampattern. As stated above, one of ordinary skill in the art at the time

of the invention would have been motivated to use Huang's beampattern to transmit Shek's

communication signal to multiple users because using the beampattern increases capacity and

minimized performance loss.

27.   Thirdly, claims must be construed as broadly as reasonable and cannot be artificially

limited to include only that which is patentable as suggested by the applicant in discussion of the

101 rejection on page 10 of the response. Claims must be amended so that the broadest

interpretation no longer includes unpatentable subject matter. Additionally, an examiner may

look to the specification for definition of terms. The definition of "a machine-readable storage

medium" provided in the specification includes non-statutory subject matter and therefore the

claims are defined as including non-statutory subject matter.

Conclusion

28.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the mailing
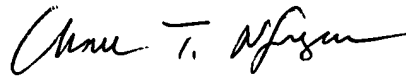
date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Kerri M. Rose whose telephone number is (571) 272-0542. The

examiner can normally be reached on Monday through Thursday, 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Chau Nguyen can be reached on (571) 272-3126. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

kmr

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